Evaluation of the Plaque Removal Efficacy of a Water Flosser Compared to String Floss in Adults After a Single Use

C. Ram Goyal, BDS
BioSci Research Canada Ltd.
Mississauga, Ontario, Canada
Deborah M. Lyle, RDH, BS, MS
Water Pik, Inc.
Fort Collins, CO, USA
Jimmy G. Qaqish, BSc
BioSci Research Canada Ltd.
Mississauga, Ontario, Canada
Reinhard Schuller, MSc
Reinhard Schuller Consulting
Toronto, Ontario, Canada

Abstract

• **Objective:** To compare the plaque removal efficacy of a water flosser to string floss combined with a manual toothbrush after a single use.

• **Methods:** Seventy adult subjects participated in this randomized, single-use, single-blind, parallel clinical study. Subjects were assigned to one of two groups; Waterpik® Water Flosser plus a manual toothbrush (WF) or waxed string floss plus a manual toothbrush (SF). Each participant brushed for two minutes using the Bass technique. The WF group added 500 ml of warm water to the reservoir and followed the manufacturer’s instructions, and the SF group used waxed string floss between each tooth, cleaning the mesial and distal surfaces as instructed. Subjects were observed to ensure they covered all areas and followed instructions. Scores were recorded for whole mouth, marginal, approximal, facial, and lingual regions for each subject using the Rustogi Modification of the Navy Plaque Index.

• **Results:** The WF group had a 74.4% reduction in whole mouth plaque and 81.6% for approximal plaque compared to 57.7% and 63.4% for the SF group, respectively (p < 0.001). The differences between the groups showed the water flosser was 29% more effective than string floss for overall plaque removal and approximal surfaces specifically (p < 0.001). The WF group was more effective in removing plaque from the marginal, lingual, and facial regions; 33%, 39%, and 24%, respectively (p < 0.001).

• **Conclusion:** The Waterpik Water Flosser and manual toothbrush is significantly more effective than a manual brush and string floss in removing plaque from tooth surfaces.

*(J Clin Dent 2013;24:37–42)*